

Introduction to the Milton-Madison Bridge Project



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Indiana ABC Experience



- 2003 Bridge slide CSX RR over SR 136
- Madison Milton
- Currently developing plans for a slide at I-70 and SR 121



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Design - Build

- First Design build was on I-65 in 1998
- Strong design build program including Accelerate 465, Super 70 and I-69 phases 2-4
- Currently focusing on interstate widening and trying best value



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Project Partners

Logos for project partners: University of Kentucky, Department of Transportation, Kentucky Transportation Cabinet, Walsh Construction, Buckland & Taylor Ltd. (a COWI company), Burgess & Niple, Michael Baker International, and CDM WilburSmith Associates.

Project Location

Study Area
One of two Ohio River bridges between Cincinnati and Louisville

- I-65 Bridge - 46 miles
- Markland Dam - 26 miles
- I-275 Bridge - 65 miles


CONNECTING TWO HISTORIC TOWNS THAT WORK AS ONE COMMUNITY

| MADISON, INDIANA | MILTON, KENTUCKY |
|--|---|
| <ul style="list-style-type: none">• Largest National Historic Landmark District with 1,800+ buildings• Clifty Falls State Park & other tourist attractions, including Madison Regatta• Population 12,600 | <ul style="list-style-type: none">• Historic river town susceptible to flooding• Rural community divided by 400 ft tall bluff• Population 600 |

Photographs of Madison, Indiana and Milton, Kentucky.

Bridge History




- 3,181-foot long truss structure with two 10-foot wide travel lanes
- Built in 1929 by J. G. White through National Toll Bridge Company
 - Tolled until 1949: 5¢ for pedestrians, 45¢ for vehicles
- Purchased by Kentucky in 1939; half interest sold to Indiana in 1970s



Project Purpose and Need

- Sufficiency Rating of 6.5 out of 100
- 15 ton load limit in 2009, 3 ton by 2011
- Two ten foot wide lanes couldn't handle traffic

Functionally Obsolete Structurally Deficient



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COLLABORATION FOR ACCELERATION

- Led by the "M3T" – leadership from KYTC, INDOT, and FHWA in both states
- Extensive coordination with
 - Stakeholders
 - Resource agencies,
 - Historic preservation groups,
 - Project Advisory Group
 - Members of the public
- Extensive media coordination
- Project Website

States and FHWA agreed to regular meetings where key decisions were made



Initial Alternative Screening

ALL alternatives considered

1. Do Nothing
2. Rehabilitation
3. Superstructure Replacement
4. Multiple New Alignments (12)
5. Transit

Indiana Department of Transportation

Criteria for a Successful Alternative

1. Assure 75 year service life
2. Feasible
3. Permittable
4. Visually Acceptable
5. Develop Design Criteria

Indiana Department of Transportation

Pier Testing and Inspection



- **Physical Inspection Feb-Mar09**
 - Non Destructive testing
 - Lab Testing of Samples
 - Existing Condition and Service life Assessment Reports

Indiana Department of Transportation

Benefits of Pier Strengthening

- Piers are in good condition – can be rehabbed for 75 year service life
- Minimize impacts to historic properties.
- Cost effective
- Can maintain existing navigational channel.

Avoided need for longer environmental process and more costly alignments



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The Proposed Action

Based on a variety of factors, the **Superstructure Replacement with Minimal Approaches Alternative** is beginning to emerge as a leading option

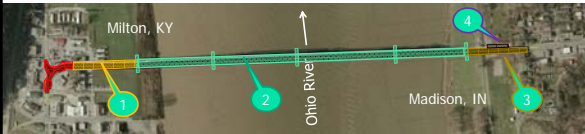
- Continued Bridge Deterioration
- Impacts to Historic Resources
- Impacts to Homes and Businesses
- Lowest Cost Alternative
- Availability of TIGER Grant
- Fastest Completion Time

Affordability can be a criteria for a NEPA decision



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Superstructure Replacement with Minimal

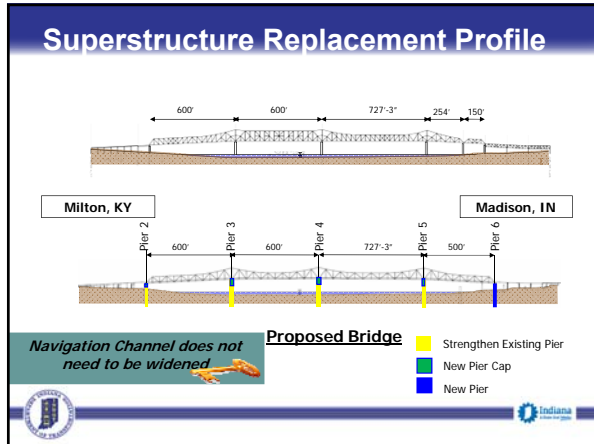


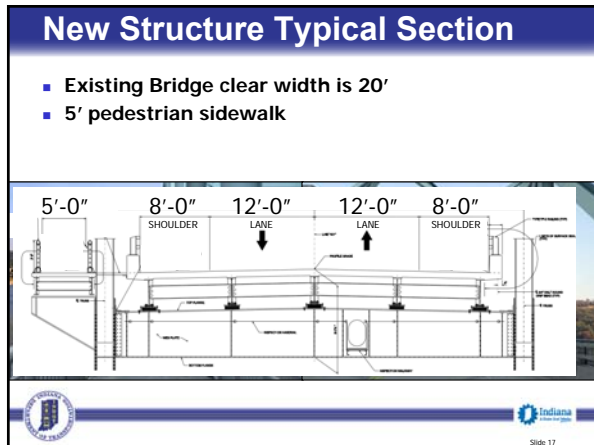
- Milton Approach re-construction
- STR 1 replace KY Approaches
- STR 2 Truss replacement
- STR 3 Replace IN Approach
- STR 4 Pedestrian Access to Park

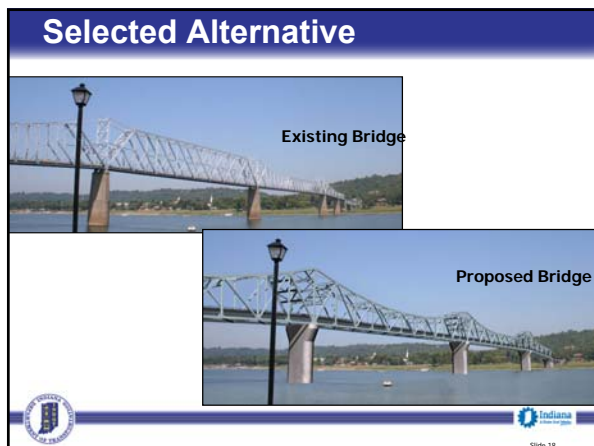
No Right-of-Way required

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NEXT STEPS

- *Original Schedule had EA/FONSI completed in Fall 2012*
- FONSI Signed March 10, 2010
- All Permits Obtained – June 2010
- Design-Build Advertisement June 2010
- Letting - September 2010
- Begin Construction Fall 2010, with maximum 365-day bridge closure



Why Design Build?

- **Encourage Innovation and Reduce Closure Timeframe**
- **No right of way Impacts**
- **Meet Tiger Grant schedule.**





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Key Project Documents

In-depth Engineering Study resulted in criteria and information documented in the following:

- A. Scope of Services
- B. Project Special Provisions
- C. Contract Bridge Drawings
- D. Contract Plan Details
- E. Project Specific Reports (Binding)
- F. Project Specific Reports (Information Only)



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Project Reports & Special Provisions

Binding Project Reports


- FINAL REPORT - STUDY OF VESSEL COLLISION ON BRIDGE PIERS, MILTON MADISON BRIDGE, MARCH 2010 (BAKER)
- WIND ENGINEERING STUDY - FINAL REPORT (RWDI)
- MILTON-MADISON BRIDGE, GEOTECHNICAL OVERVIEW (KYTC/BAKER)

Other Project Specific Reports (Information Only)

- PIER STRENGTHENING REPORT FOR EXISTING PIERS 6-9 (BAKER)
- EXISTING PIERS SERVICE LIFE ASSESSMENT (CTL)
- FINAL ENVIRONMENT ASSESSMENT REPORT FOR THE MILTON MADISON BRIDGE (WSA)
- PRELIMINARY HYDRAULIC and SCOUR ANALYSIS REPORT (WSA)



Design Criteria Special Provisions (Binding)

- STRUCTURE PERFORMANCE CRITERIA (SPC) FOR BRIDGE NO.2
- STRENGTHENING OF EXISTING PIERS





Ferry Service during Construction

- 52 Mile Detour
- No Cost to Users
- Ferries would accommodate vehicles, up to 240 per hour
- Ferries would not be able to operate during high water, extreme fog, etc
- Special provisions for medical emergencies





Coordination for Peregrine Falcon

- Special Provision Requirements
 - KDFWR Coordination
 - Relocation of Nesting Box
 - KDFWR Access to Box
 - Potential Nesting Sites
 - Cover February 1 – June 30
 - No Work w/n 300' of Nest



Low Bid Formula and Contractual Dates

- **Formula for Effective Bid Price**
 - Lowest effective bid wins.
 - Const. Cost, Closure Days and Open to Traffic Date
- **[A + B – Adjustment]**
 - A = Construction Cost
 - B = Closure Days x \$25,000/day.
 - Adjustment = \$3.75 million (September 2012)



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Design Build Proposals

Let in September 2010
Five Contractors submitted bids

Project was awarded based on :

- Cost to construct project (\$102-\$127 million)
- Length of bridge closure (10-365 days)
- Date to open bridge to traffic (Sept 2012/May 2013)





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Awarded Design-Build Team

Walsh Construction, Inc (CONTRACTOR)
Construction firm in La Porte, IN
www.walshgroup.com

Burgess & Niple, Inc. (DESIGNER)
Engineering firm in Columbus, OH and Indianapolis, IN
www.burgessniple.com

Buckland & Taylor (DESIGNER)
Bridge engineering firm in Seattle, WA
www.b-t.com



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Proposal for Design Build Process



Innovative construction process:
Build a new truss on downstream piers while the existing bridge remains open to traffic

Strengthen existing piers

Remove old truss and slide the new truss onto the strengthened existing piers

Shortest closure periods (approx 10 days)

Will the temporary bridge be safe? Yes. Downstream bridge piers constructed to modern bridge standards, to handle traffic and withstand barge impact



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Proposal for Design Build Process



Similar Bridge-Sliding Projects



1. Trenton Ontario Bridge
2. San Francisco Bay Bridge
3. Old Capilano Bridge



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Post construction inspection to date and future



- **Developed an inspection and maintenance manual for the bridge to be used for each inspection**
 - Description of the bridge including it's history
 - Access
 - Identifies fracture critical members, weld locations and notes that no category E, E' or F details are in the superstructure.



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Post construction inspection to date and future



- Notes location of temporary connections now grouted over.
- Notes members that were damaged and not repaired during construction
- Suggested maintenance
- Suggestions for member replacement procedures



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Post construction inspection to date and future



- **The initial inspection of the bridge was performed on August 21, 2014**
 - Completed prior to final punch list and paint not touched up and pedestrian rail not installed



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Post construction inspection to date and future

- **Both a routine and fracture critical inspection were performed on June 5, 2015.**
 - Distorted members noted – previously determined that they were ok
 - Areas of ponding water noted on some upper and lower chords. Have been remediated.



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QUESTIONS?



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